GROUP NUMBER FOUR (ITS) - PRESENTATION

GROUP TASK

- Explain Spanning trees and Co – tree with real life example.

GROUP MEMBERS

LIST BELOW:

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INTRODUCTION

Definition of terms under spanning, minimum spanning, co – trees

- ✓ Spanning tree is a connected graph using all vertices in which there are no circuits. For example **a cable company wanting to lay line to multiple neighborhoods.**
- ✓ **Edges**
- ✓ **Vertices**
- ✓ **Circuits or cycles**
- ✓ **Connected Graph**
- ✓ **Undirected Graph**
- ✓ **Directed Graph**

INTRO….CONT….

- ✓ **Simple graph**

Properties of Spanning trees

- ✓ Circuit rank – (How it works)

APPLICATION OF SPANNING TREES IN REAL LIFE

Spanning trees in life used in the following field:

- ✓ For implementing Routing protocols in computer networks.
- ✓ In civil network planning to build networks
- ✓ For clustering i.e. grouping, similar objects under one category and distinguishing other categories

MINIMUM SPANNING TREES

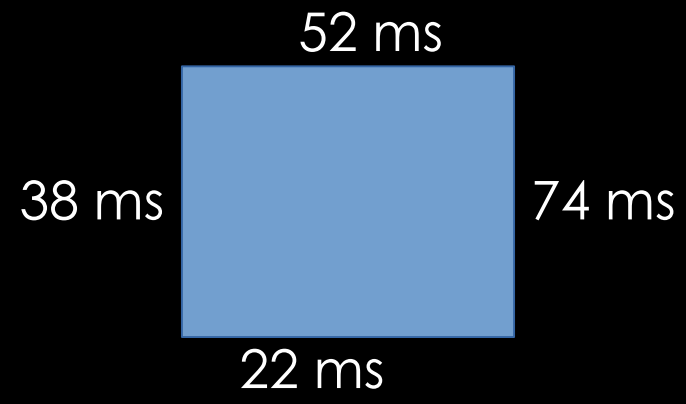
- ✓ Definition
- ✓ Minimum spanning tree algorithms
- ✓ Example (consider Hannah's problem):

All computers must be connected to the Internet or to another computer that is connected to the Internet. This forms a spanning tree of the University's computers at Hannah's university. Any spanning tree works, but with delays on every hop, some paths are faster than others. Hannah wants to choose a spanning tree, which will assure the fastest or close to the fastest overall system performance. This is the external criteria, which determines the best spanning tree.

EXPLICITLY ENUMERATION

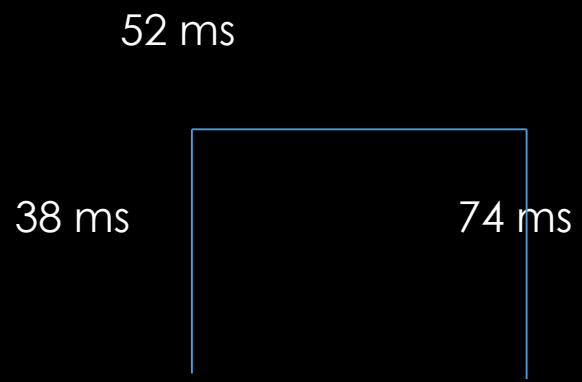
- ✓ Explanation on how explicitly enumeration

Consider the diagram below:



A four node, four (4) edged network

CONT.....



Spanning tree 1

- Proceed in that sense until to the last spanning which is Spanning 4.
- Then after finishing constructing all the edges, followed by summation of those three sides then you check the summation which contain smallest value in the table.

KRUSKAL'S ALGORITHM

- ✓ How does Kruskal's works
- ✓ Example of Kruskal's algorithm
- ✓ Explanation in details are in the submitted copy
  Now will provide explanation

PRIM'S ALGORITHM

- ✓ How does the prim's algorithm works?
- ✓ The applications of prim's algorithm in real life
- ✓ Example of prim's algorithm

CO - TREES

- ✓ Definition
- ✓ Trees
- ✓ Connected subgraph
- ✓ Examples

- ❑ CONCLUSION

REFERENCES

- Kenneth H. Rosen, 2007, Discrete mathematics and its application, sixth edition, McGraw-Hill, New York.
- Wu, B. & Chao, K. (2004). Spanning Trees and Optimization Problems. Chapman and Hall/CRC.
- https://www.javatpoint.com/spanning-tree
- https://www.tutorialspoint.com/network_theory/network_theory_topology.htm

END OF PRESENTATION

THANK YOU
FOR LISTENING

QUESTION PLEASE…….?